



Forest Insect & Disease Management

Detection Report
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DETECTION SURVEY FOR PINE ROOT COLLAR WEEVIL WASHBURN RANGER DISTRICT, CHEQUAMEGON NATIONAL FOREST

by

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INTRODUCTION

At the request of Tom Smith of the Chequamegon National Forest, in northwestern Wisconsin, Forest Insect and Disease Management made a detection survey for damage by the pine root collar weevil on the Washburn Ranger District in June and July 1979.

The pine root collar weevil (Hylobius radicis Buchanan) is a tree-killing pest of sapling red pine (Pinus resinosa Ait.) in plantations such as those on the Chequamegon National Forest. Trees are attacked at the root collar and in the larger roots, where the weevil larva bores into the sapwood and causes girdling of the stem. Pitch flow is heavy at the point of attack. The weakened roots may fail to hold the tree upright during high winds, so that although the tree is not killed outright, it leans or may even be blown over. In trees attacked by three or more root collar weevil larvae the needles become straw yellow and later turn brown when the tree dies.

OBJECTIVE

The objective of the survey was to determine the relative abundance of pine root collar weevil damage in red pine plantations on the Washburn Ranger District, Chequamegon National Forest.

METHOD

The Chequamegon National Forest Staff identified 37 red pine plantations and provided Forest Insect and Disease Management entomologists with a Washburn Ranger District map that showed the outline and acreage of the plantations. Washburn Ranger District personnel provided compartment maps and instructions for gaining access to the plantations.

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Each plantation was surveyed for dead, dying, off-color, or leaning red pine that might be infested by the weevil. The intensity of the walk-through survey varied with plantation size. Crews spent more time and traveled greater distances in larger plantations. Symptomatic trees were closely examined to determine the cause of their decline.

RESULTS

Thirty-seven red pine plantations were examined. These plantations totaled about 4,080 acres; the trees ranged from 3 ft to 20 ft tall and averaged 8 ft. Of the nearly 490,000 red pine trees seen during the survey, 104 were suspected of having been damaged by pine root collar weevil. All of the damaged trees had been invaded by shoestring root rot (Armillariella mellea (Vahl ex Fr.) Karst.), which made positive identification of weevil damage impossible on most of the trees. Root rot alone was responsible for the loss of an additional 259 red pine trees. Rate of loss due to weevil and root rot was 0.7 tree for each 1,000 trees examined. Pine root collar weevil did not kill more than 1 tree in 1,000 in any plantation, but root rot was responsible for killing more than 2 trees per 1,000 in seven plantations. Stands 199-19 and 111-10 lost 9.5 and 15.1 trees per 1,000, respectively, to Armillariella mellea.

CONCLUSIONS AND RECOMMENDATIONS

A survey of 37 red pine plantations on the Washburn Ranger District indicated that pine root collar weevil is at very low damage levels. The weevil should not be considered a problem in the management of these plantations.

Root rot is a contributor to tree loss in most red pine plantations, but it is not a limiting factor in stand establishment. Healthy, vigorous planting stock, planted to specifications as soon as possible after tree or weed removal, will have a good start in root establishment and will be able to compensate for root-rot attack.